In the Claims

Please amend claim 37 as indicated in the listing of claims.

The following listing of claims will replace all prior versions and listings of the claims in the present application:

Complete Listing of the Claims

1. (Previously Presented) A Light Emitting Diode dental curing light source for curing dental composite materials comprising:

A first substrate composed of a material capable of efficiently conducting heat and conducting electrical current, said substrate having a top and a bottom

A plurality of cups located in said substrate top, at least some of said ups being sized and configured to have at least one light emitting diode mounted therein

A plurality of light emitting diodes, said light emitting diodes being capable of emitting light when supplied with adequate electrical current, at least some of said light emitting diodes being firmly mounted in said cups, said light emitting diodes being in thermal communication with said substrate so that heat produced by said light emitting diodes is conducted away from said light emitting diodes

Electrical wiring configured to provide electrical current to said light emitting diodes in order to power them and cause them to emit light

A heat pipe capable of efficiently conducting heat from on location to another, said heat pipe have a proximal end and a distal end, said heat pipe proximal end being firmly mounted against said the bottom of said substrate in order to transfer heat from said substrate to said heat pipe's distal end,

A heat sink constructed of material capable of efficiently dissipating heat into the heat dissipation environment, said heat sink having a top and bottom, said heat sink top being firmly

attached to distal end of said heat pipe to accept and dissipate the heat from said distal end of said heat pipe

Control circuitry capable of controlling electrical current transmission to said light emitting diodes in order to control light production by said light emitting diodes.

2. (Original) A device as recited in claim 1 wherein said substrate is constructed, in part, of diamond.

3. (Original) A device as recited in claim 1 wherein said substrate is constructed, in part, from a metal selected from the group containing copper, aluminum, gold, silver, iron or combination thereof.

4. (Original) A device as recited in claim 1 wherein said substrate is constructed, in part, of a metal.

5. (Original) A device as recited in claim 1 wherein said heat dissipation environment is air.

6. (Original) A device as recited in claim 1 wherein said heat dissipation environment is water.

7. (Original) A device as recited in claim 1 wherein said heat dissipation environment is a phase change heat effusion material.

8. (Original) A device as recited in claim 1 wherein said cups in said substrate are coated

with a optically reflective material.

9. (Original) A device as recited in claim 1 wherein said cups in said substrate are coated with an optically reflective material selected from the group comprising rhodium, silver, platinum and gold.

10. (Original) A device as recited in claim 1 wherein said cups in said substrate have angled walls, curved walls, square walls or a combination thereof.

11. (Original) A device as recited in claim 1 wherein said heat sink is constructed, at least in part, of metal.

12. (Original) A device as recited in claim 1 wherein said heat sink is constructed, at least in part, of aluminum.

13. (Original) A device as recited in claim 1 wherein said heat pipe is constructed, at least in part, of copper, water and a wick material.

14. (Original) A device as recited in claim 1 wherein said heat pipe is constructed, at least in part, of copper, alcohol and a wick material.

15. (Original) A device as recited in claim 1 wherein said heat pipe is constructed, at least in part, of metal, water and a wick material.

16. (Original) A device as recited in claim 1 wherein said heat pipe is constructed, at least in part, of metal, alcohol and a wick material.

17. (Original) A device as recited in claim 1 wherein said substrate, heat pipe, and heat sink are electrically conductive and are integral, electrically with the anode of said light emitting diodes.

18. (Original) A device as recited in claim 1 wherein said plurality of light emitting diodes are comprised of light emitting diodes of different wavelengths.

19. (Original) A device as recited in claim 1 wherein said plurality of light emitting diodes produce light of wavelengths selected from the group 430 nanometer, 450 nanometer, 470 nanometer or combinations thereof.

20. (Original) A device as recited in claim 1 wherein said control circuitry and said electrical wiring includes batteries for operation of the device off of said batteries or a plug which allows the device to run off of AC line current or a combination thereof.

21. (Original) A Light Emitting Diode dental curing light source for curing dental composite materials comprising:

A first substrate composed of a material capable of efficiently conducting heat and conducting electrical current, said substrate having a top and a bottom

A plurality of light emitting diodes, said light emitting diodes being capable of emitting light when supplied with adequate electrical current, at least some of said light emitting diodes

being firmly mounted to said substrate, said light emitting diodes being in thermal communication with said substrate so that heat produced by said light emitting diodes is conducted away from said light emitting diodes

Electrical wiring configured to provide electrical current to said light emitting diodes in order to power them and cause them to emit light

A heat pipe capable of efficiently conducting heat from on location to another, said heat pipe have a proximal end and a distal end, said heat pipe proximal end being firmly mounted against said the bottom of said substrate in order to transfer heat from said substrate to said heat pipe's distal end,

A heat sink constructed of material capable of efficiently dissipating heat into the heat dissipation environment, said heat sink having a top and bottom, said heat sink top being firmly attached to distal end of said heat pipe to accept and dissipate the heat from said distal end of said heat pipe

Control circuitry capable of controlling electrical current transmission to said light emitting diodes in order to control light production by said light emitting diodes.

22. (Original) A device as recited in claim 21 wherein said substrate is constructed, in part, of diamond.

23. (Original) A device as recited in claim 21 wherein said substrate is constructed, in part, from a metal selected from the group containing copper, aluminum, gold, silver, iron or combination thereof.

24. (Original) A device as recited in claim 21 wherein said substrate is constructed, in part, of

a metal.

25. (Original) A device as recited in claim 21 wherein said heat dissipation environment is air.

26. (Original) A device as recited in claim 21 wherein said heat dissipation environment is water.

27. (Original) A device as recited in claim 21 wherein said heat dissipation environment is a phase change heat effusion material.

28. (Original) A device as recited in claim 21 wherein said heat sink is constructed, at least in part, of metal.

29. (Original) A device as recited in claim 21 wherein said heat sink is constructed, at least in part, of aluminum.

30. (Original) A device as recited in claim 21 wherein said heat pipe is constructed, at least in part, of copper, water and a wick material.

31. (Original) A device as recited in claim 21 wherein said heat pipe is constructed, at least in part, of copper, alcohol and a wick material.

32. (Original) A device as recited in claim 21 wherein said heat pipe is constructed, at least in

part, of metal, water and a wick material.

33. (Original) A device as recited in claim 21 wherein said heat pipe is constructed, at least in part, of metal, alcohol and a wick material.

34. (Original) A device as recited in claim 21 wherein said substrate, heat pipe, and heat sink are electrically conductive and are integral, electrically, with the anode of said light emitting diodes.

35. (Original) A device as recited in claim 21 wherein said plurality of light emitting diodes are comprised of light emitting diodes of different wavelengths.

36. (Original) A device as recited in claim 21 wherein said plurality of light emitting diodes produce light of wavelengths selected from the group 430 nanometer, 450 nanometer, 470 nanometer or combinations thereof.

37. (Currently amended) A device as recited in claim 21 wherein said control circuitry and said electrical wiring includes batteries for operation of the device off of said batteries or a plug ~~plag~~ which allows the device to run off of AC line current or a combination thereof.

38. (Original) A Light Emitting Diode dental curing light source for curing dental composite materials comprising:

A first substrate composed of a material capable of efficiently conducting heat and conducting electrical current, said substrate having a top and a bottom

A plurality of cups located in said substrate top, at least some of said cups being sized and configured to have at least one light emitting diode mounted therein

A plurality of light emitting diodes, said light emitting diodes being capable of emitting light when supplied with adequate electrical current, at least some of said light emitting diodes being firmly mounted in said cups, said light emitting diodes being in thermal communication with said substrate so that heat produced by said light emitting diodes is conducted away from said light emitting diodes

A lens or plurality of lenses used to collect, focus and or collimate the light being emitted by said light emitting diodes,

Electrical wiring configured to provide electrical current to said light emitting diodes in order to power them and cause them to emit light

A heat pipe capable of efficiently conducting heat from on location to another, said heat pipe have a proximal end and a distal end, said heat pipe II proximal end being firmly mounted against said the bottom of said substrate in order to transfer heat from said substrate to said heat pipe's distal end,

A heat sink constructed of material capable of efficiently dissipating heat into the heat dissipation environment, said heat sink having a top and bottom, said heat sink top being firmly attached to distal end of said heat pipe to accept and dissipate the heat from said distal end of said heat pipe

Control circuitry capable of controlling electrical current transmission to said light emitting diodes in order to control light production by said light emitting diodes.

39. (Original) A device as recited in claim 38 wherein said control circuitry and said electrical wiring include batteries for operation of the device off of said batteries or a plug which

allows the device to run off of AC line current or a combination thereof.

40. (Original) A device as recited in claim 38 wherein said substrate is constructed, in part, of diamond.

41. (Original) A device as recited in claim 38 wherein said substrate is constructed, in part, from a metal selected from the group containing copper, aluminum, gold, silver, iron or combination thereof.

42. (Original) A device as recited in claim 38 wherein said substrate is constructed, in part, of a metal.

43. (Original) A device as recited in claim 38 wherein said heat dissipation environment is air.

44. (Original) A device as recited in claim 38 wherein said heat dissipation environment is water.

45. (Original) A device as recited in claim 38 wherein said heat dissipation environment is a phase change heat effusion material.

46. (Original) A device as recited in claim 38 wherein said cups in said substrate are coated with a optically reflective material.

47. (Original) A device as recited in claim 38 wherein said cups in said substrate are coated with an optically reflective material selected from the group comprising rhodium, silver, platinum and gold.

48. (Original) A device as recited in claim 38 wherein said cups in said substrate have angled walls, curved walls, square walls or a combination thereof.

49. (Original) A device as recited in claim 38 wherein said heat sink is constructed, at least in part, of metal.

50. (Original) A device as recited in claim 38 wherein said heat sink is constructed, at least in part, of aluminum.

51. (Original) A device as recited in claim 38 wherein said heat pipe is constructed, at least in part, of copper, water and a wick material.

52. (Original) A device as recited in claim 38 wherein said heat pipe is constructed, at least in part, of copper, alcohol and a wick material.

53. (Original) A device as recited in claim 38 wherein said heat pipe is constructed, at least in part, of metal, water and a wick material.

54. (Original) A device as recited in claim 38 wherein said heat pipe is constructed, at least in part, of metal, alcohol and a wick material.

55. (Original) A device as recited in claim 38 wherein said substrate, heat pipe, and heat sink are electrically conductive and are integral, electrically with the anode of said light emitting diodes.

56. (Original) A device as recited in claim 38 wherein said plurality of light emitting diodes are comprised of light emitting diodes of different wavelengths.

Claims 57-102. (Cancelled).

103. (Previously Presented) A device as recited in claim 38 wherein said plurality of light emitting diodes produce light of wavelengths selected from the group 430 nanometer, 450 nanometer, 470 nanometer or combinations thereof.

104. (Previously Presented) A device as recited in claim 38 wherein said lens or said plurality of lenses are constructed from a group of materials comprising glass, plastic, holographic film or combinations thereof.

Claims 105-147. (Cancelled).